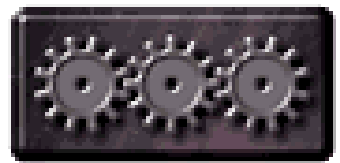
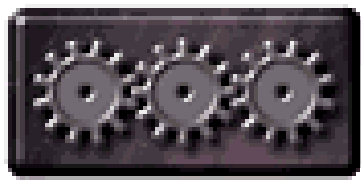


SEMINAR ON “GUIDED MISSILE”





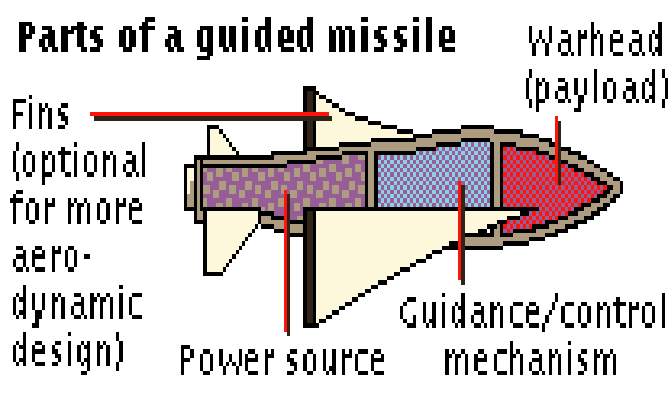
INTRODUCTION

- Guided Missiles, usually containing conventional or nuclear explosives, guided in flight towards a target either by remote control or by internal mechanisms. Guided missiles vary widely in size and type, ranging from large strategic ballistic missiles with nuclear warheads to small, portable rockets carried by foot soldiers.

PRINCIPLE

- TRACKING
- GUIDANCE
- FLIGHT





Target plane

Heat sensitive missile
("homes" on trail of plane)

Target
helicopters

Command
guided missile

Ballistic missile
(pre-determined
path, no need for
constant monitoring)

Launch pad
or silo

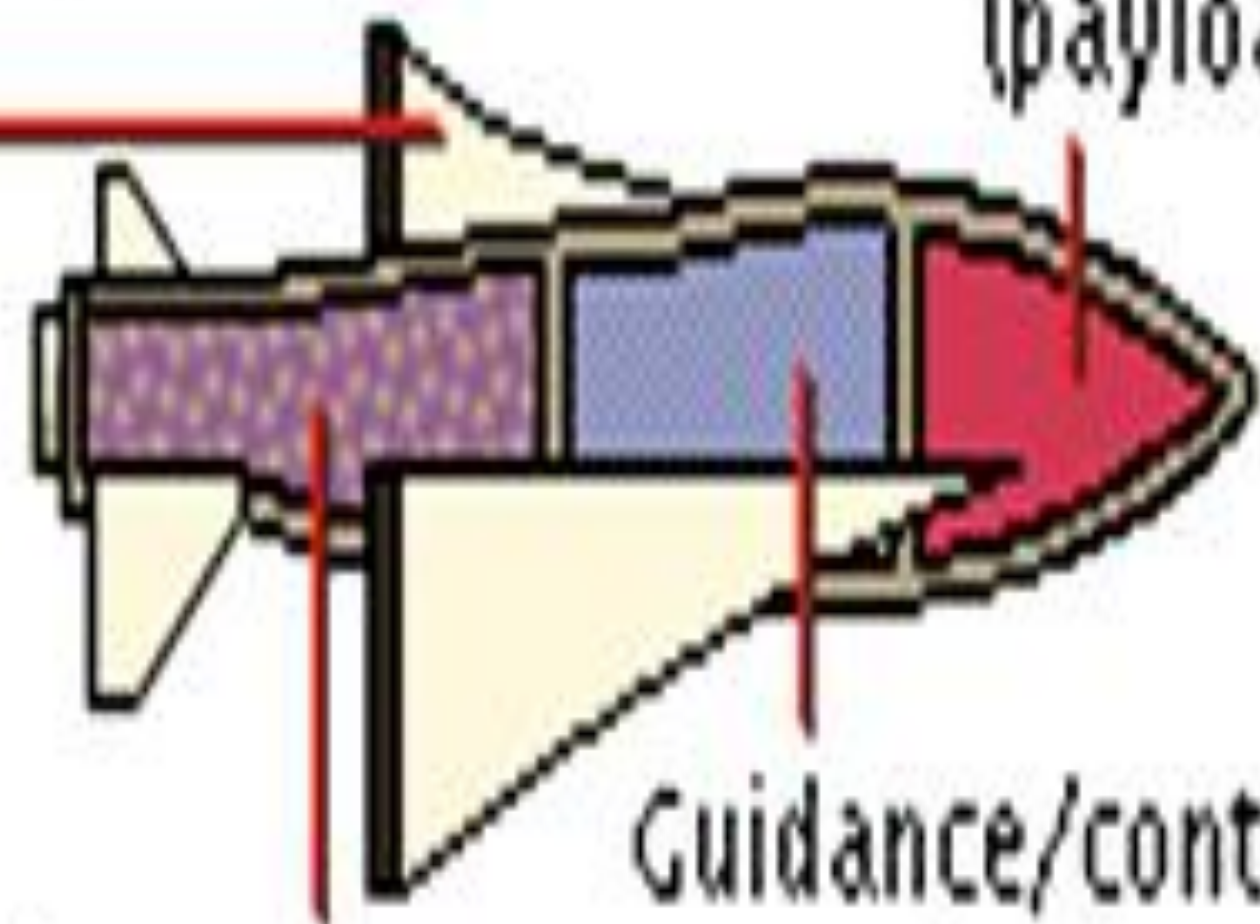
Radar
tracking beams

Radio control
beam relays
instructions

Target tank

Parts of a guided missile

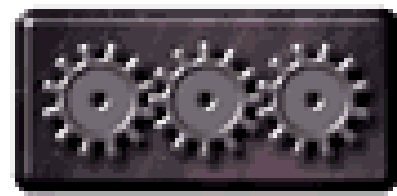
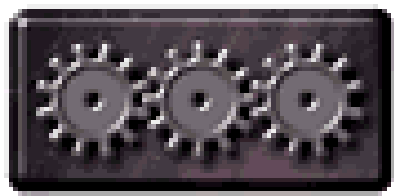
Fins
(optional
for more
aero-
dynamic
design)



Warhead
(payload)

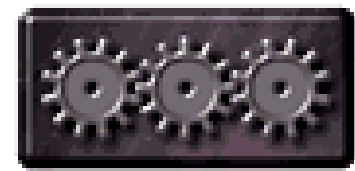
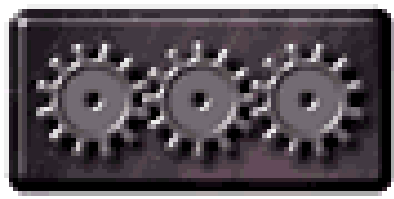
Power source

Guidance/control
mechanism



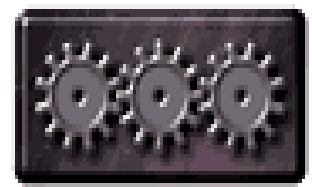
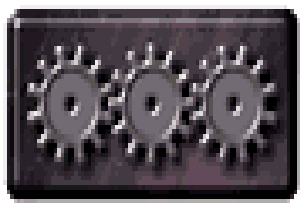
POWER SOURCE

- 1) **SELF CONTAINED ROCKET MOTORS:** It contains a motor fan which force it by the air to proceed. It is less efficient & used in the past era.
- 2) **AIR BREATHING JET ENGINE'S:** In this type of power source the combustion chamber in which the fuel burns is called the motor When the fuel in a solid-propellant rocket is ignited, the gases formed during combustion are forced out the nozzle and the rocket moves forward. The fuel is called the grain and is often formed with a hollow core for longer burning times.



WARHEAD

- A **warhead** is an explosive device used in military conflicts, used to destroy enemy vehicles or buildings.
- Typically, a warhead is delivered by a missile, rocket or torpedo. It consists of the explosive material, and a detonator.

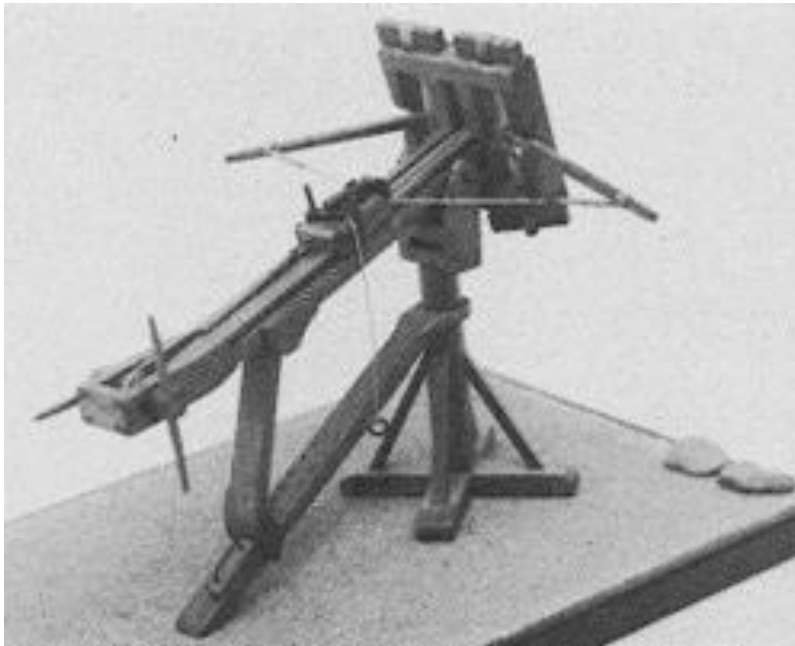


Types of warhead

- **Explosive**: An explosive charge is used to disintegrate the target, and damage surrounding areas with a shockwave.
- **Chemical**: A toxic chemical, such as nerve gas is dispersed, which is designed to injure or kill human beings.
- **Biological**: An infectious agent, such as anthrax is dispersed, which is designed to sicken and kill humans



BALLISTA



- The **ballista** is a powerful weapon conceived as a giant crossbow, to eject heavy darts singly or in groups. It is also sometimes referred to as a *bolt thrower*.



TYPES OF MISSILES

A) SURFACE TO SURFACE

1. V-1 & V-2 2. LAND BASED.
2. LAND BASED STRATEGIC MISSILE.
3. SEA BASED STRATEGICAL MISSILE.
4. CRUISE MISSILE.
5. TACTICAL MISSILE.

B) AIR LAUNCHED MISSILE

C) SURFACE TO AIR MISSILE

* AIR DEFENCE



V-1 & V-2



LAND BASED MISSILE



SEA BASED MISSILE



CRUISE MISSILE



AIR LAUNCHED MISSILE



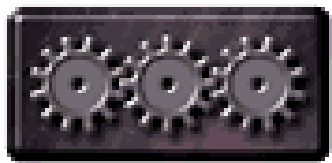
NUCLEAR MISSILE



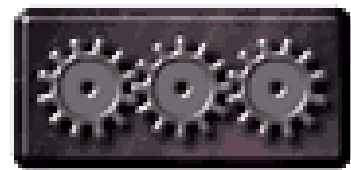
Encarta Encyclopedia, The National Archives/Corbis

SURFACE TO AIR

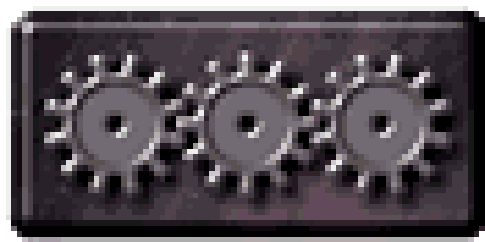




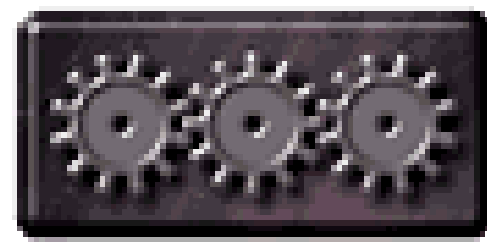
INERTIAL GUIDANCE **SYSTEM (INERTIAL** **PLATFORM)**



An inertial navigation system measures the position and altitude of a vehicle by measuring the accelerations and rotations applied to the system's inertial frame. It consists of an inertial navigation system combined with control mechanisms, allowing the path of a vehicle to be controlled according to the position determined by the inertial navigation system



Guidance system



A guidance system is a device or group of devices used to navigate a ship, aircraft, missile, rocket, satellite, or other craft. Typically this refers to a system that navigates without direct or continuous human control. Systems that are intended to have a high degree of human interaction are usually referred to as a navigational system

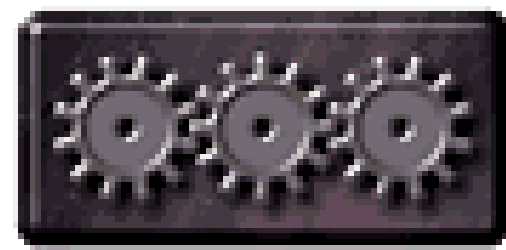
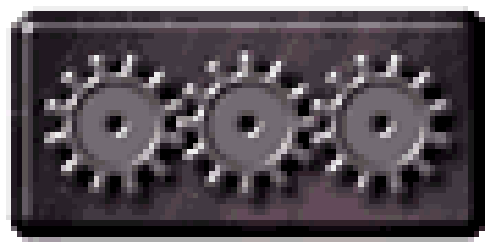
TYPES OF GUIDANCE

- REMOTE CONTROL
- BEAM RIDING
- LASER GUIDANCE
- ACTIVE REDAR HOMING
- WIRE GUIDED MISSILE
- INFRARED HOMING

REMOTE CONTROL

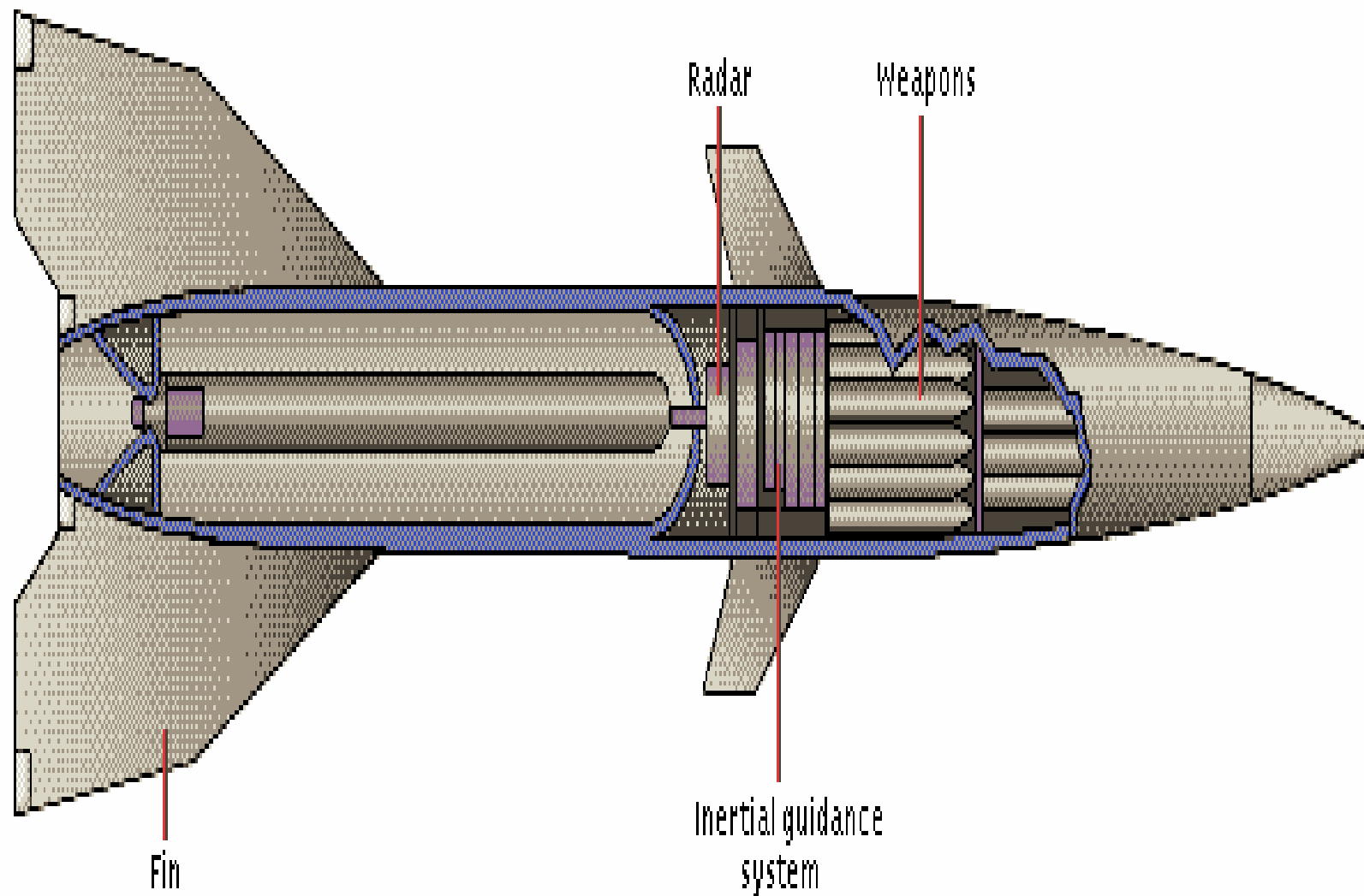
IN THIS TYPE OF GUIDANCE SYSTEM WE SIMPLY USED A REMOTE CONTROL TO JUST GIVE THE INSTRUCTION TO THE FINS OF THE MISSILE TO MOVE IT TOWARD' THE TARGET

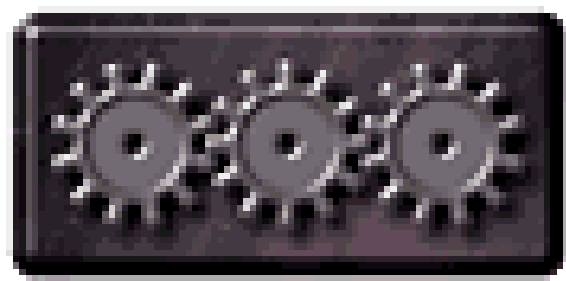




BEAM RIDING

- Beam-riding guidance leads a missile to its target by means of radar or a laser beam. It is one of the simplest forms of radar or laser guidance.
- The main use of this kind of system is to destroy airplanes or tanks



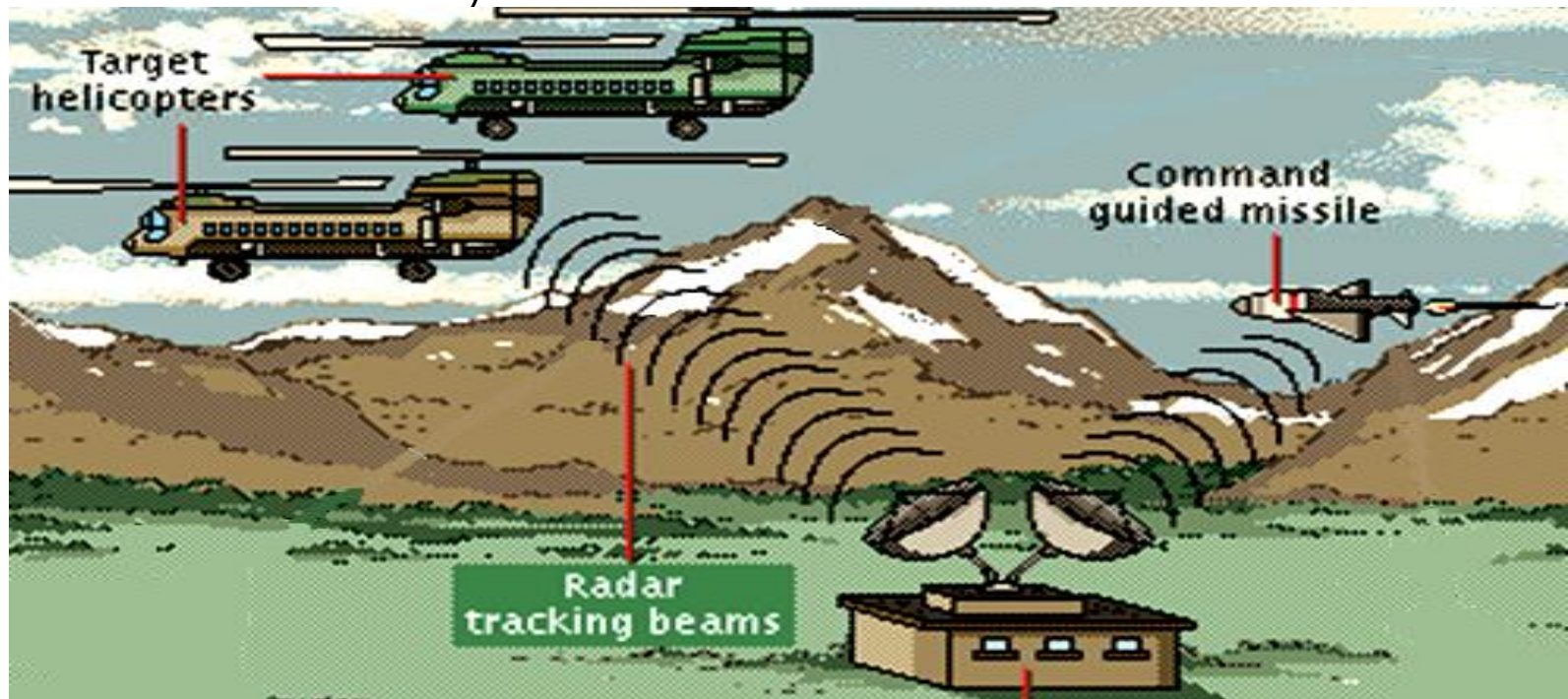


LASAR GUIDANCE

Laser guidance is a technique of guiding a missile or other projectile or vehicle to a target by means of a laser beam.

ACTIVE RADAR HOMING

Active radar homing is a type of missile guidance where a guided missile contains a radar transceiver and the electronics necessary for it to find and track its target autonomously.

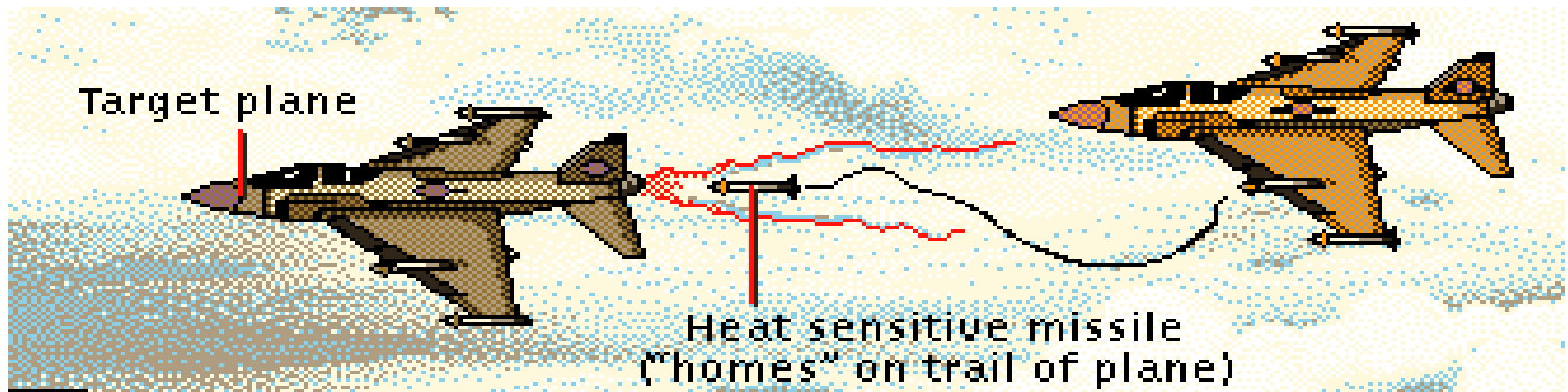


WIRE-GUIDED MISSILE

A wire-guided missile is a missile guided by signals sent to it via thin wires reeled out during flight.



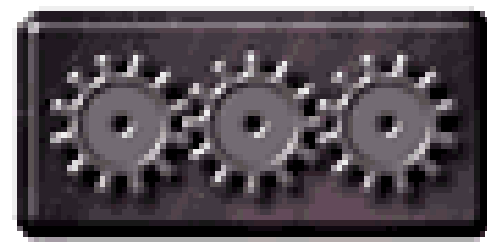
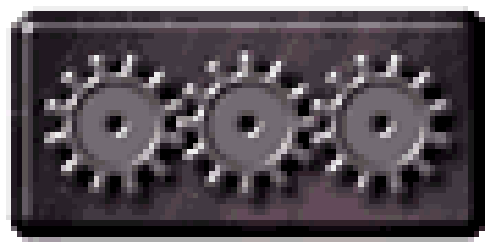
INFRARED HOMING



Infra-red homing refers to a guidance system which uses the infra-red light emissions of a target to track it. Missiles which use infra-red seeking are often referred to as "heat-seekers". Infra-red is just below the visible spectrum of light and is radiated mostly by hot bodies.

MAJOR GUIDANCE **SYSTEMS**

- Long Range Navigation (LORAN)
- Global Positioning System (GPS)
- Laser designation
- Optical guidance



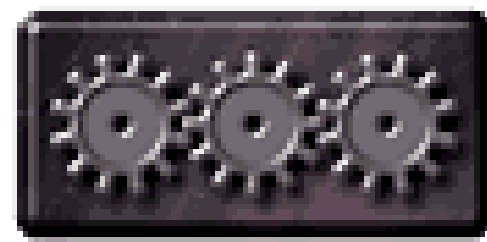
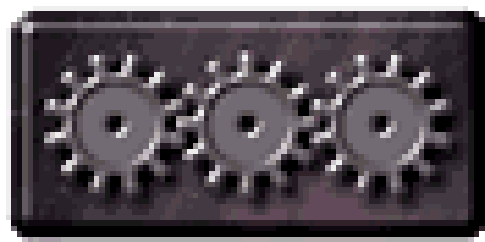
Long Range Navigation (LORAN)

This was the predecessor of GPS and was (and to an extent still is) used primarily in commercial sea transportation. The system works by triangulating the ship's position based on directional reference to known transmitters.



Global Positioning System (GPS)

This system of satellites provides extremely accurate position information. The receiver's position is triangulated using satellites in known orbits. Commercial receivers are limited in how accurately they may provide position data, as well as the maximum velocity at which they may operate. This is to prevent their use in manufacturing weapons.



Optical guidance

Guided missiles use stored images of the terrain they are to fly over and an external sensor to track their current position. This guidance system was extremely expensive and not suitable for use in small payload operations. These were used on cruise missiles before the advent of GPS, which is both cheaper and more accurate. Devices that implement optical guidance incur high costs because of the high on-board processing requirements needed to check the current location against the course data

ANTI SETELITE MISSILE

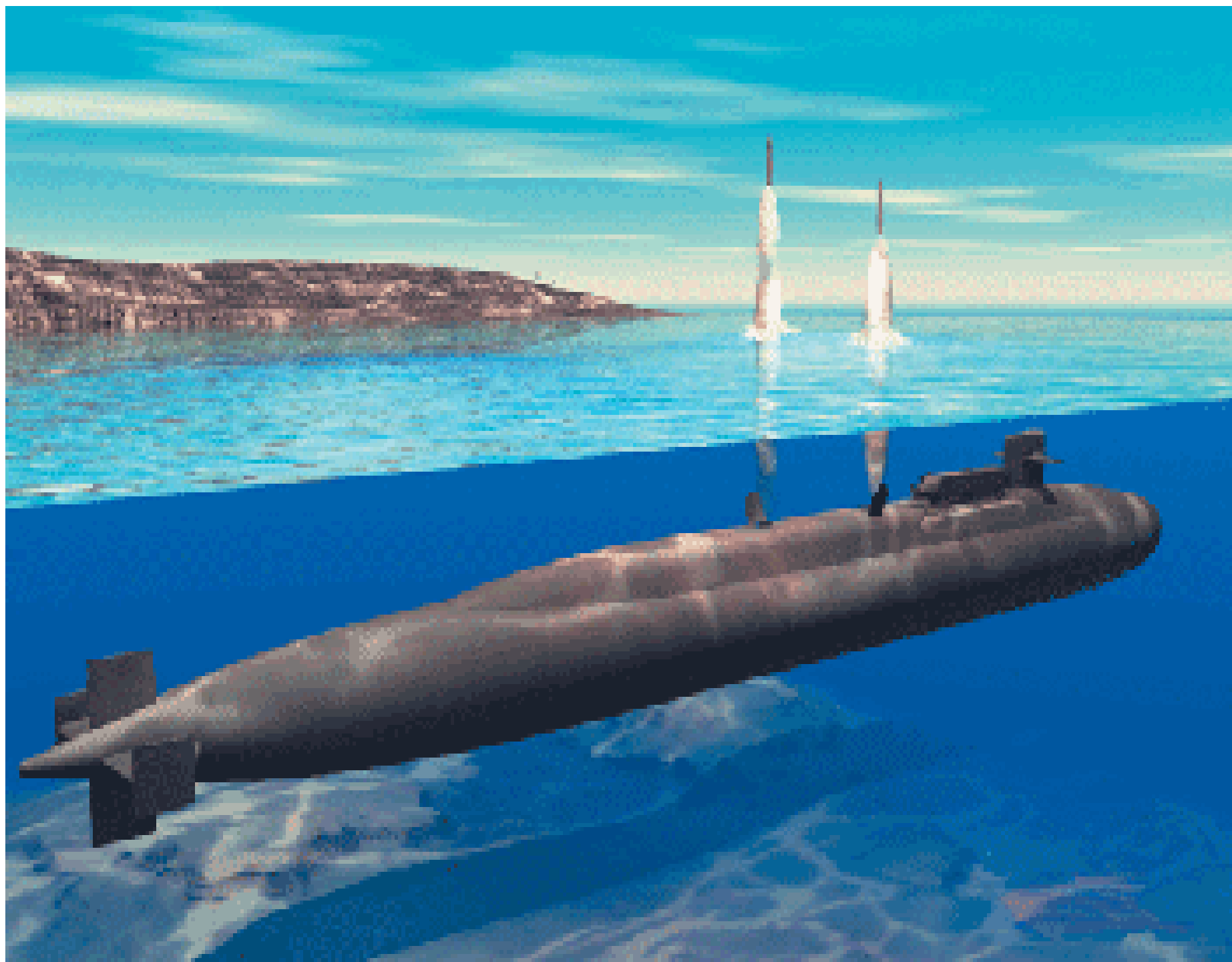


Anti-satellite weapons (ASATs) are weapons designed to be used against artificial satellites.

ANTI-SHIP MISSILE



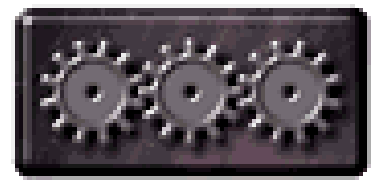
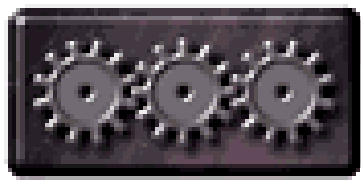
An Anti-ship missile (AShM) is a military missile designed for use against naval surface ships.



ANTI-TANK MISSILE



An Anti-tank guided missile (ATGM) is a missile primarily designed to hit and destroy tanks. An alternative name is Anti-tank guided weapon (ATGW).



FIRE & FORGET

- ❖ Fire and forget is the military term for a type of missile which does not require further guidance after launch such as illumination of the target, and can hit its target without the launcher being in line of sight of the target.

BALLISTIC MISSILE



- ❑ A ballistic missile is a missile, usually with no wings or fins, with a prescribed course that cannot be altered after the missile has burned its fuel, whereafter its course is governed by the laws of ballistics.

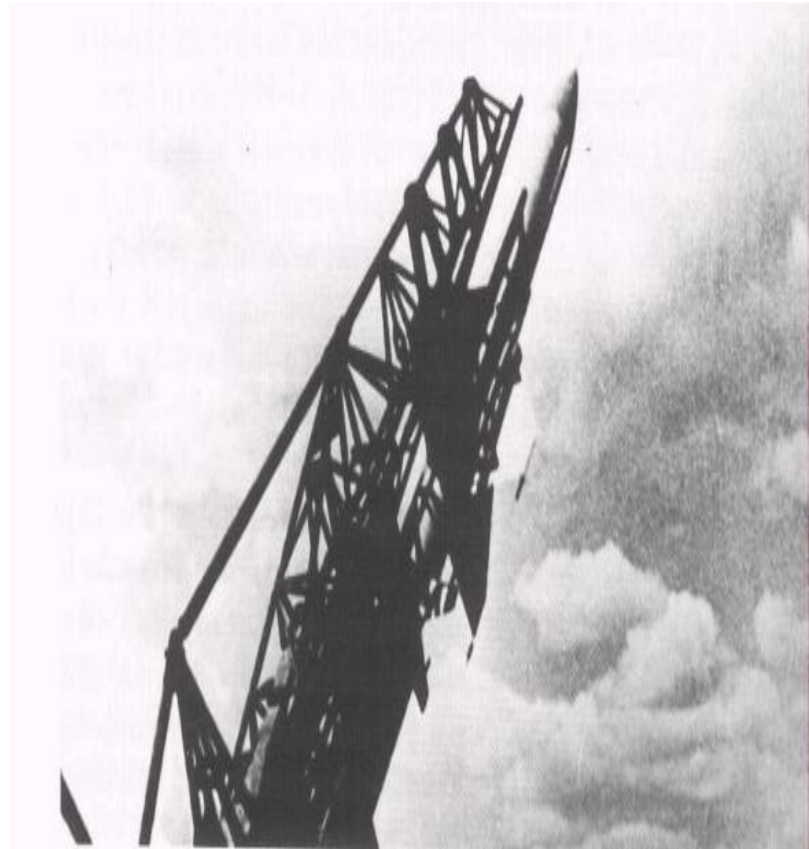
Intercontinental ballistic missile

- ❑ An intercontinental ballistic missile, or ICBM, is a long-range ballistic missile using a ballistic trajectory involving a significant ascent and descent, including sub-orbital flight.



ANTI-BALLISTIC MISSILE

An anti-ballistic missile (ABM) is a missile designed to counter intercontinental ballistic missiles



THANK YOU



ASHISH VERMA

B.TECH,(E.I),VI'th SEM

SECTION – A

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